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SCHOOL AND SOCIETY

Volume XVII SATURDAY, JUNE 30, 1923 Number 444

THE REAL "EDUCATIONAL DETERMINISM"

THE following editorial note is found in the January number of the *Journal of Applied Sociology:*

The Social Science Association of Southern California has gone on record as favoring the requirement of three years of social science studies in the high school curriculum. At a recent meeting the chief proposal was to introduce three years of social science in the junior high school also; it was suggested that in the seventh grade Social Science I be given and devoted to peoples in relation to geographic factors, that in the eighth grade Social Science II be offered and deal with peoples in relation to the development of social institutions and that in the ninth grade Social Science III be listed and treat of peoples in relation to social movements.

They would, of course. Nearly every kind of subject-matter specialist—in Latin, chemistry, physics, astronomy, music, French, English language, industrial arts, graphic art, manual training, hygiene, physical training, home economics, bookkeeping, geography, English literature, American history, ancient history, modern history, algebra, geometry, botany, biology, thrift, current events, vocational guidance and the rest—feels that his favorite study should be "required" in high schools. Now the junior high school seems also a promising territory for additional preemptions and mandates.

The classicists and mathematicians, supported by tradition and a mistaken psychology, were once able largely to predetermine secondary curricula. Now, with skepticism of tradition gaining ground and the faculty psychology undermined, they are losing and new "blanket prescriptionists" are coming into power.

There are, of course, two kinds of prescription. One is personal and concrete, taking account of individual characteristics and potentialities as studied and evaluated. The other is impersonal and abstract, oblivious to individual powers and needs. A competent physician "prescribes" after individual diagnosis. The stand-pat college "prescribes" Latin for all alike, quite indifferent to the unlike talents of potential entrants, or to the numerous ways in which these can capitalize their respective talents towards subsequent social service and personal well-being. It was similarly once possible for orphanages to prescribe castor-oil or calomel for all inmates simultaneously when service for individual diagnosis was lacking; whilst the less wise among us even yet permit chiropracters and other similar healers to prescribe cure-alls with no regard to distinctive needs.

So now, to save educators the trouble of making desirable adaptations, we "require" certain kinds of calesthenic exercises of all children in New York State, including those already of excellent physique and health. We require all high school students to take our formal English literature, notwithstanding that in any suburb will be found from five to fifteen per cent. of sixteen year old girls who already have more literary "culture" than their teachers and who give positive promise of adequately extending and expanding their liguistic powers and literary interests if the school will only leave them free

to continue their home-initiated culture as is so commonly done in the better homes of England. Some high schools require all girls to take home economics, granting no exemption to that minority of girls who are already better practical homemakers than their teachers and who, left alone, will presently acquire needed technical knowledge *via* self-education.

It is sound public policy for legislatures, or school systems, or competent teachers, to prescribe studies or other educative means—from corrective gymnastics and spading garden soil to Greek or economics or trigonometry—to those who demonstrably need them, or to those who are so situated that through such studies they can probably render valuable and relatively important returns to society. But why prescribe them indiscriminately in advance of any knowledge of such need or obligation as found in individuals?

In these days, when we are learning so much about the variabilities of learners and when the "social inheritance" of things we can readily teach even to a young child, is so expanding and proliferating that at best we can bring him into effective contact with only a fraction of them, the "general prescriptionists" in education should be made to carry a heavy burden of proof. Algebra and trigonometry are very valuable departments of knowledge; but it does not follow that one hundred per cent. of our young people need study them in order that their full benefits may be realized by our societies. The social sciences, literature, music, European history and even current events are certainly highly valuable subjects of study—for some; but, in the absence of any evidence of their usefulness for all, why require all pupils to take them? They will certainly not be needed by all individuals in order to live well; and their adequate possession by some reasonable per cent. of learners will serve all ordinary social purposes. The typical academic mind is scandalized to find a trade school for boys from sixteen to nineteen years of age without "cultural" studies. How does he know that interest and receptive powers for these have not been exhausted between six and sixteen; or, that individual or social needs beyond those already met still remain to be served?

All the studies or other activities that have been offered or proposed during the last twenty-five years for inclusion in the non-vocational curricula of schools for youth from twelve to eighteen years of age are clearly rich in possible educational values—for some. Certainly baseball and dancing, current events and social problems, Italian and bacteriology are useful and attractive studies—for some persons. But it is no less certain that the foreign language or classical English literature, the manual training or gymnastics, the general science or algebra required of all (in some or most schools) have been utterly profitless to some either for culture or for any other purpose.

Now the social sciences are coming to the front. Naturally their devotees feel them to be exceedingly important studies for secondary schools—as they unquestionably are. But why important for all pupils? Why more important for some pupils than thorough courses in music or Spanish, in chemistry or trigonometry, in scouting or vocational guidance, in public speaking or American literature, or even in current events? Neither time nor energy is available to the individual pupil for all or even a tenth of the good things that may economically be offered in the modern large urban high school or junior high school. For our future civic well-being it is highly important that some persons study the social sciences deeply, just as for our cultural future it is indispensable that a musically talented minority should become proficient amateur and professional performers of music.

In the upper grades, and to a consider-

able extent in some high schools and liberal arts colleges, we have tried to compromise with the difficulties of a rich and varied menu of studies by taking "a little of everything." The most visible effects of this policy are seen in the appalling aimlessness and superficiality of our instruction and training in modern languages, natural science, English literature and other subjects, including those pedagogic monstrosities, the so-called "prevocational studies."

Where election by pupils has measurably superseded prescription by the "system" the youngsters, naturally, have not shown more intelligence than their elders in making programs. They, too, think a little is "good enough—whether it be Spanish or public speaking, agriculture or drawing. Why should they be expected to show more wisdom than their teachers?

It will be urged that we have no adequate means of ascertaining the actual potentialities and needs of individuals, either towards prescription or recommendation. Have we ever seriously tried? Certainly the confused and hurried consultations on the opening days of school are not worth much. But how much less adequate is prescription by "system" in advance of any contact with individuals?

There are now over 2,000,000 boys and girls in attendance on America's public schools—the superior grades of ability and of home environment being chiefly represented. Yesterday we required them all to take algebra; today they must all take our formal English studies; tomorrow they will all be required to take civics or other half-developed social studies.

It is, of course, deeply comforting to be able confidently to say of one's favorite subject "it is so important that all pupils (in given schools) should have it." These naive confidences held by all specialists are of the same cloth obviously as those other confidences that we possess as to the superiorities of our religions, our polities, our race, our place of residence.

When a secondary school offers many more subjects or courses than a given learner can take, it is probable that:

a. The worst method of having programs made for pupils is "prescription" by the school system. That corresponds to the "prescription" of clothes found in prisons, ships and orphanages of former times; to the prescriptions of medicines by grandmothers and fakirs; to the prescription of wage-rates irrespective of the potentialities of workers; and to the prescription of reading in advance of any knowledge of tastes and capacities for appreciation. (It will be indignantly asserted that educators know far more about universal needs for and values of seventh grade arithmetic, college entrance foreign language, tenth grade English literature and twelfth grade "problems of democracy" than did these other prescriptionists of the general needs for their impositions. But do educators know this? Or do they just feel or imagine that they know it?)

b. The next worst method is that of allowing the pupil freely to elect his courses. Suggestive analogies for this process will occur to any one.

c. A bad system is that of having programs made on the basis of consultation with teachers throughout the hurried opening days of school.

d. A fair system would be that of .....

e. A good system would be that of .....

How can we do much to find the answers to *d* and *e* until we add to our present hopeful knowledge of pupils' abilities something substantial in the way of knowledge of the real (as opposed to mythical or guessed-at) values of the different kinds of knowledge, skill, ideal, appreciation and the rest as these may be held and applied by different kinds of brains and spirits and bodies?

There are many signs that educational science is now "on the track" of some sound principles of curriculum making for junior and senior high schools. The recent success of studies of the "functional objectives" of spelling, oral reading, handwriting and arithmetic in the grades is promising. It is submitted that even now theses like the following deserve respectful consideration by the policy-makers of education for youths from twelve to eighteen years of age:

1. These youths are very variable as respects three factors of major importance in determining the optimum education for each—namely, native or previously developed abilities, sustaining opportunities from environment (including family) and potentialities of serviceableness to society or of well-being for self.

2. There is no subject ordinarily suggested for school curricula for these ages which is not a highly valuable, if not nearly a best, subject for some.

3. There is no one of these subjects, either, which is not an unnecessary, a profitless, perhaps a seriously harmful study for some (harmful, that is, to morale and high purpose).

4. It is, for example, of great civic and cultural and, possibly, vocational importance to the future America that somewhere in our secondary school system should be found excellent opportunities for willing and able-minded youth to study to the stage of substantial mastery: Japanese; economics; specific forms of sub-professional industrial chemistry; amateur singing; homemaking; current American literature; astronomy.

5. It is not of any particular consequence that all pupils of these ages, or even the upper half of them in intelligence, should study: Latin; any foreign language; physical training; algebra; history; English literature as now taught; oral composition; civics; or any other subject.

6. When it is fairly certain that learners of known potentialities towards particular forms of service to society or of well-being for themselves could achieve such service through correction of demonstrated shortages at any given time —whether of spelling or crooked spine, correct pronunciation or general reading interests, civic behavior or vocational training—then society has clearly a right to require that these shortages shall be corrected whilst the plasticities of youth continue.

7. Some studies or activities are of no permanent value unless pursued with thoroughness and to some high point of mastery; whilst other studies are of much, perhaps *optimum,* value when pursued superficially, even fragmentarily.

8. An adequately democratic system of education would make us as much alike as practicable in some respects and leave us free to develop or self-educate ourselves to be as unlike as practicable in other respects. The preconceptions of the "uniformitarians" or "determinists" as respects the means and compulsions of these respective ends are probably as biased and wrong as were the similar preconceptions of earlier uniformitarians in religion, politics, culture and sumptuary utilizations.

DAVID SNEDDEN

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TEACHING "LITERATURE" TO UNDERGRADUATES

IT was a good many years ago that I had my first experience as a teacher. I was a senior in a western college which then maintained an old-fashioned academy —a pleasant survival of the days before the public high schools. An unexpected call drew away a member of the college faculty; an instructor from the academy staff stepped into his place, and I was drafted to help out at the bottom of the line. As I stood outside the classroom door on that memorable first day, wonder-

ing by what art I could subdue the crowd of youngsters waiting for me, I felt a hand on my shoulder and turned to find the principal smiling at my obvious perturbation. "Don't worry too much about it," he said, "and remember, the boys in there won't learn a great deal during the next two months, but you will learn a lot." He was a wise and genial adviser, and a true prophet. Ever since that morning I have been the learner—drawing far more from the care-free, likable young people in front of me than I have ever been able to give back to them. They have given me many years of good fun; years in which I have come to feel that my particular job of teaching English literature to college undergraduates is one of the most interesting and, at the same time, one of the most perplexing methods of earning a living.

The perplexities take the shape of half a dozen insistent question marks—recurring interrogations upon my mental horizon, which I find it difficult to resolve into affirmations. For instance, always there is the problem what to teach. The old or the new? Traditional subjects and materials, or those which the average person of to-day feels are somewhat intimately related to his own life? Things which are important to the literary historian, or which are interesting to the undergraduates? What the students like, or what we think will be good for them? It is perfectly obvious that there is not complete agreement on these matters among teachers, or that where there is a superficial agreement there is apt to persist a feeling of dissatisfaction with the more or less conventional solution of the problem.

And even though the *what* of the curriculum may be answered, after a fashion, by the selection of those well-worn classics which despite their years of service do maintain their freshness, even then the insistent *how* is always present. There may be some difficulties about methods of teaching algebra or Latin prose; I do not know. There are many to baffle the teacher of literature. Lectures, recitations, classroom discussion, written reports, textbooks—the tools seem varied enough, and at first blush ample for all situations. Practically, however, many a teacher wanders bewildered by the multifarious possibilities that present themselves, or unthinkingly chooses the line of least resistance.

Such problems as these of methods and materials, however, are simple in comparison to the difficulties that begin to show themselves when one considers the matter of literary standards. What standards are there that we should set up before our undergraduates? Should we take a leaf from Jeffery's note-book and apply objective standards to the material with which we deal, assuring the students, *ex cathedra*, that these things are good because they come up to the mark established by critical tradition? Does the old yard-stick still function, or have the ever-succeeding groups of modernists and protesters thrown the book of rules out the window, and left us uncertain about all standards? Can we go to Arnold for advice, and assure the undergraduate of to-day that such and such things are great poetry because they have the ring of "the grand style" about them? Should we discuss the matter of literary standards with the average class of undergraduates at all, or should we be content with seeing to it that the young people acquire a reasonable familiarity with the *matter* of the course? In other words, is there a fairly definite "body of doctrine" that can be taught, as one teaches trigonometrical formulas or the endings of the Greek verb? If there is a body of doctrine, where can our students turn to find it? "On what page of the volume of nature" is it engrossed?

Again, it is not an easy task to deter-

mine what should be the end, the goal of undergraduate courses in literature. No, it is a difficult task, and one which many instructors evade altogether, with the result that they plod along from text to text, content when the required "ground has been covered." It is just here that the practical men, the advocates of vocational education and interesting features that the world of business is just now contributing to education, it is just here that these practical enthusiasts have their great advantage. They know what they want; they show their students a definite objective; then they push everything else aside, that the path to the goal may be kept clear. We, on the other hand, with many possible objectives, fail often to realize any one. As Emerson once put it, concerning a rather futile acquaintance of his, we aim at nothing and hit it. Small wonder that to some observers the teaching of letters seems a reproach—at least a waste of time. In my judgment, these critics are in no small measure right. Frankly, we do not know where we are going. We cling blindly to tradition, and though the tradition is often good, that fact does not palliate our failure honestly to think through the problem of the teaching of literature, and to come at some defensible notion of what the end of such teaching ought to be.

Such matters as these concern what we might call the instructor's end of the work; they are the problems which he should try to solve before setting foot in a classroom. Some of the difficulties, however, can not even be stated with clarity till one considers the reaction of the undergraduates to our instruction. These larger problems involve the students' end of the work. For instance, does the study of letters count for anything at all to-day, in face of the competition offered by the thousand and one varieties of "useful" courses? Is it more than a reasonably harmless way of acquiring credit towards a degree? Do the students who come to our lecture rooms in such large numbers —for come they do, for one reason or another—have any idea of the relation between the study of letters and the process of adjusting oneself to the problems and conditions of life—a process in which our educational systems should be of the greatest service? Does the instructor himself see beyond the immediate problem of cramming a certain number of facts concerning, say, Milton, into the heads of his class? Does either instructor or student realize the part which the study of letters may play in helping one acquire that priceless thing, a mature sense of values?

Or, to put it differently, are we accomplishing anything by our teaching of literature? Are we merely continuing in the old way, wearing what Carlyle would call the old clothes of education, because our inborn conservatism forbids us to depart from that way; or are we, as we hope, contributing something of genuine value to the lives of our students, and through them to society? Are we indeed fighting the battle of culture, aiding a little in making "reason and the will of God prevail," or are we earning our salaries by going through proper and decorous pedagogical motions? Do our students carry away with them a love of good books? Are they the happier because we have brought them in contact with those things which we still think make for the increase of sweetness and light? I wonder.

Well, as I think over what I am trying to do in my lecture room, I find such problems as these constantly perplexing me. Some of them, indeed, seem virtually to defy solution. Fortunately, there is another side to the ledger, and looking at this I discover a few fairly definite conclusions shaping themselves in my mind.

To be sure, the first of these matters

is not one which in any marked way makes the general problem easier, for it is simply this: the task of teaching literature to undergraduates is extremely difficult. I would willingly exchange for a month or two with my colleagues in mathematics or chemistry, in order to deal with subjects in which there were such things as an absolute right or wrong, a "correct answer," definite, demonstrable conclusions reached from understandable premises. The teacher of literature finds no such definiteness possible. There is no Q. E. D. to bring the discussion to a close. His subject matter can not be reduced to theorems or stated in equations. He is dealing with material which, were it susceptible of such treatment, would not be fit material for his course. Yes, it is hard to teach literature—hard to show a lazy youngster that he has done his work ill, still harder to guide the earnest student to that sort of intelligent comprehension which is founded on both thoughtful study and esthetic appreciation.

Sometimes it seems to me that this very fact that literature is a difficult subject to teach, and a correspondingly difficult subject for the student to master, this fact in itself is enough to suggest the value of the subject in the curriculum. So much educational material has been denatured, has suffered the loss of its alcoholic content, that it is worth a good deal to keep alive a study in which both instructor and student will inevitably be put to their trumps to achieve distinction. But the argument need not be pressed, for there are other considerations of greater importance.

For instance, I am convinced that if the study of literature is to be of any genuine value to our undergraduates, it must be conducted in a way that will make it distinctly more interesting than it normally appears to be. In fact, this matter of interest might well be the prime concern of every instructor. Unless he is willing and able to teach literature in a way that shall actually interest the normal young man or woman, he should not teach it at all. Can the subject be so taught? Assuredly. Of this I am certain. Of course, there may be stretches of hard sledding, particularly in introductory courses. Even here, however, the instructor bent on making his course contribute as much as possible to his students' welfare, will temper justice with mercy, and will select such material as his own experience shows that he himself can present interestingly.

To be sure, even when an instructor is willing thus to select material with an eye to the enjoyment of his students, even then there is still some danger. "Life is short," said Josh Billings, "but it is long enough to ruin any man who really wants to be ruined." Similarly an instructor can kill any course if he really wants to kill it. He can kill it by spending too much energy on textual interpretation, or on technical considerations. While theoretically it is quite true that in order to understand Paradise Lost one must know what each word of the poem meant to Milton, still it is indisputable that much good can be derived from the epic, and much pleasure too, by merely reading the poem as a poem. Similarly it is an interesting thing to pull a novel to pieces, to study its component parts in their relationships to one another. It is a better thing to get a young man of to-day interested in reading Thackeray—in simply reading. What matter if at the end of the course he be unaware that Thackeray's use of, say, background, is different from Dickens's? He has sat at the library table with a great man, and his life has been enriched.

Just here, of course, the conservative will cry "Superficiality," and I recognize the danger. My reply is that when once a student is actually interested in his reading, he will not be content with mere super-

ficiality, but will probably feel inclined to do some solid thinking. And, furthermore, superficiality is a less disastrous impediment to navigation than dullness. When the study of letters is made thoroughly uninteresting, and thus is closed to the average young man of to-day, it does little good for the instructor to be profound with the few who brave the terrors and enroll. Far better to fill the classroom, even at the risk of not delving below the surface of things. But I would not concede that superficiality and interest need be inseparable, nor that dullness and what we call "scholarly methods of presentation" are everywhere Siamese twins. No, such a hypothesis would be absolutely indefensible. Only so much as this can we say with assurance: that just as Kipling's sergeant "learns to make men like 'im, so they'll learn to like their work"; so the wise instructor will do his utmost to make his students enjoy the material he offers them, realizing that unless they are genuinely interested they will derive but little benefit. If the instructor will remember what Wordsworth said about the end of poetry being to give pleasure, or if he will write above his desk the last line of Masefield's "Biography," "The days that make us happy make us wise," why, then he will have taken one definite step in the direction of a change that seems to me distinctly desirable.

In any effort to make the study of letters interesting and significant, the wise instructor will constantly be on the search for the *ideas* to be found in the text—not the mere interpretative meanings, but the larger and more stimulating general ideas which underlie entire documents. He will be on the lookout for what the men whom he is studying actually had to say. The undergraduate of to-day, whatever his shortcomings, can be interested in ideas; in old ideas that he thinks should perhaps be discarded, in new ones that should at least be examined. He is far more interested in discussing Arnold's opinion of American education than in comparing Arnold's prose with Newman's or in tracing Arnold's indebtedness to St. Beuve. He is far more interested in Huxley's ideas concerning the relation of science to education than in studying the growth of the essay as a type. To be sure, it is far easier for a young man to air his second or third hand opinion on either of these questions than it is for him to get down to brass tacks and point out just how Arnold's sentence structure differs from Newman's. Easier, but more thought-provoking, and more likely to suggest to the young man the desirability of going further with this not uninteresting study of literature.

In other words, the instinct of the undergraduate seems to me more or less right; that of the teacher not infrequently wrong. Literature in our undergraduate colleges should be taught as the student vaguely feels that it should be taught—as if it were in truth the guide book to the museum of life, a guide book from which much pleasure may be derived, and in which may also be found significant ideas concerning the many problems of existence. Here in truth, in that marvelous series of books which men and women by common consent have marked for preservation, here in the world's literature may be found the opinions, the advice of the wisest among the sons of men. Here our young people may sit at the feet of Socrates, of Paul, of Dante, of Burke, of Lincoln. Here, in richer measure than in any other storehouse to which man has the key, can be found that accumulated experience of the past from the study of which alone can man understand the present or hesitatingly project the curve of the future.

Yet all too generally we treat this material as if it could best be examined in a vacuum, as if it had no relation to the world in which we live, no contribution

to make to that life in the form of invigorating ideas. Small wonder that the business man, finding us so hesitant about bringing the study of letters into relation with the problems of everyday existence, concludes that there is no such relation, and isolates us behind our campus fence. He considers us "queer guys," able perhaps to entertain his wife at her club meeting, but unable to do anything of value for him or for what he calls the "real world." He is but recognizing the fact which we by our prejudices and methods force upon his attention, the fact that on the average the teaching of letters to-day is out of contact with that world in which men live and love and struggle and die.

Small wonder that our young men, reacting as do their fathers, and unwilling to take time in a busy college course to do work which appears utterly devoid of significance, turn eagerly to those branches of the curriculum in which it is at least possible to see the goal at which the instructor is aiming. The college student of to-day is sensitive to the pressure of what he calls modern life; he is zealous, perhaps over-zealous, to relate what he is learning in his college courses to the problems of his own life. Consequently, unless we who are in charge of the teaching of literature are willing and able to help these eager young people make these correlations, we must not protest when they turn aside to agriculture or commerce. To put it baldly, we must make literature qualify as a vocational subject.

For we can not expect to hold people to the old tradition by raising the cry of culture, unless we are willing to change our methods and our ideals. Culture has never been bred in a vacuum. Dante effected in the "Divine Comedy" an immediate and significant correlation of literature and life; Thomas Gray, academic recluse that he was, was an eager student of politics and philosophy and science; Lowell was statesman as well as critic, reformer as well as poet. With him, as with Arnold, literature was primarily a tool for the enrichment of life. Only if we are willing to pattern after the example of Lowell, and to keep the study of letters constantly in contact with the larger study of humanity, only then can we comfort ourselves with the thought that our work is in any significant way "cultural."

One method of maintaining this contact, an obvious one, yet one which the average college instructor hesitates to adopt, is the device of linking as closely as possible the three subjects of history, philosophy and literature. We ourselves know that this union has already been made; we know that literature *is* history, plus a sort of beauty which ensures permanence to the record; we know that it *is* philosophy, expressed not in abstract scientific terminology, but in concrete image and colorful phrase. Yet it is only the rare teacher who attempts to open the eyes of his students to these obvious facts, to treat literature against its proper background of social, political and economic history, or to show it in its relation to the philosophical development of a given age.

One more thing we must assuredly hold before ourselves as an ideal, and that is to bring home to our students in some way the fact that literature is an art, to be studied, ultimately, as an art, and that it can make men and women happier by bringing them into contact with an enduring and ever-appealing form of beauty. Here, of course, the task of the teacher becomes Herculean in its difficulty. To avoid the vaporings of the long-haired esthete is in itself not difficult, but to suggest sanely those things which will most certainly bring one's students to the proper state of mind is sure to prove baffling. Nevertheless, we must make the attempt. The apostles of music do not fail to point out the social importance of their art—

are we not threatened with a veritable deluge of community singing—nor are the painters and sculptors reticent about the value of a statue in a park or a painting on a schoolroom wall. Similarly the teacher of literature, provided he keep clear of fads and of vulgarity masquerading as art, can perform a genuine service by pointing out to his students, and through them to a constantly widening audience, the enduring significance of that sort of beauty which is the glory of literature. I know the task will be difficult, and that at times one will see only failure before him. But the goal is worth the pains, and the ultimate success assured—assured because it is the very nature of humanity to cherish beauty as well as to seek for truth.

When the teacher of literature is able to show his students this union of truth and beauty in the material he offers them, when he has interested them in the ideas presented, and has awakened some esthetic appreciation of the form in which these ideas are clothed, then he has virtually accomplished the hardest task of all—he has made it possible for the student himself to justify that study for which to-day too many persons seem prone to offer apologies. Yes, we must do this, even though it be distasteful; we must make it possible for the student to answer for himself the question, "What good is all this to me? What value is there in it? What use will it ever be?" To be sure, no one will ever give a wholly adequate answer to such queries, but some answer there must be—some answer which can be phrased in the idiom of to-day, and understood by the man of to-day. Until we can convince our students that the study of letters can make them both wise and happy, can give them significant information about men and women, and help them estimate the present as well as understand the past, can make them better business men and lawyers because they will be masters of information of which otherwise they would have been ignorant, and because they will have at their command a never-failing source of pleasure, until we can do these things we shall fail in our mission.

Franklyn B. Snyder
Northwestern University

EDUCATIONAL EVENTS

A NATIONAL CODE FOR THE LIGHTING OF SCHOOLS

The lighting, building, education, health and social agencies of the country have joined hands in an effort to develop a nationally accepted code for school lighting which will correct the conditions partially responsible for the defective vision of ten to twenty per cent. of the school children.

The formulation of this code is being carried on under the auspices of the American Engineering Standards Committee, a federation of national organizations, government departments and other agencies interested in standardization, whose official approval of a standard or code insures its ultimate acceptance by the principal interests concerned.

The conditions that make such a code necessary have been summarized as follows by a committee of the Illuminating Engineering Society:

Examinations of thousands of school children, extending over many years, have shown that from ten to twenty per cent. of the children suffer from defective vision, the result largely of continued use of the eyes in close work under unhygienic conditions. It is well established that defective vision is progressive and is therefore found to a larger extent among the older children.

Many of the factors contributing to defective vision of children are closely connected with school life, and to this extent the causes are preventable and may be removed. Modern educational methods impose severe requirements upon the immature eyes of children and create the need for the very best working conditions.

It is therefore essential that the lighting of school buildings, both natural and artificial, should be of the best design. The status of the art of illumination is so well established that it is

entirely feasible and practicable to prevent eyestrain by the proper design of school buildings and the installation of suitable lighting equipment.

Economically, it is found that, in general, children with defective vision are retarded in their progress in school life, and also enter upon their life work seriously handicapped. It is right, therefore, that a state should concern itself to protect and conserve the vision of children from an economical, as well as a humanitarian standpoint.

THE NEW HARVARD ADMISSION PLAN

WHAT is regarded as the most important change in the Harvard admission requirements since the introduction of the "New Plan" in 1911 has just now been finally approved by the Harvard University authorities. Schools will receive notice this spring that hereafter pupils who have satisfactorily completed an approved school course such as is outlined in the description of the New Plan and whose scholastic rank places them in the *highest seventh* of the boys of their graduating class, may, if recommended by their school, be admitted to college *without examination.*

In its comment on the significance of the change the ***Bulletin*** says:

This is neither the certificate system, nor a limitation of numbers. It is the creation of a preferred class defined solely by scholastic standards. It facilitates the entrance of boys whose native ability, industry and previous training are beyond all question.

It is hoped that in schools which already prepare boys for Harvard entrance examinations this opportunity may operate as an incentive to scholastic attainment. It is hoped that in schools which do not habitually prepare boys for Harvard this opportunity may be a means of establishing new contacts and so of securing a wider distribution of students. As a gesture of confidence and hospitality it may also be expected to strengthen the friendly ties between the college and secondary schools generally.

THE ACQUISITION OF THE GREIST PROPERTY BY YALE UNIVERSITY

FIRST detailed facts about "one of the most significant and important gifts ever made" to Yale were presented by President Angell at the Yale alumni luncheon at New Haven on June 19 when he told of the acquisition of the Greist property. This tract of almost 750 acres, which adjoins land near the Yale Bowl already owned by the university for the athletic association, was acquired by an anonymous friend for the university in February "to encourage general participation in athletic sports by the students of the university and to provide increased facilities for such athletic sports." Under the terms of the deed of gift Yale is free to develop for the athletic association such portions of the property as are most suitable therefor and to sell off other portions for residence sites, devoting the proceeds of any such sales to the purpose of encouraging general participations in athletic sports and to providing increased facilities for these.

President Angell went on to say:

The great size of the tract of land thus acquired, the liberal terms of the deed of gift, the interest shown in the welfare of the university and of its undergraduates and the clear vision of the donor in securing for the university at this time when it was still available a property which must be of literally inestimable value to Yale in the future, combine to make this one of the most significant and important gifts ever made to the university. It is a satisfaction to pay this tribute to the donor in the presence of so large a gathering of our graduates, and to add that the athletic association and the university are endeavoring to show themselves worthy of the good fortune which has come to them by seeking to secure the very best expert advice available before determining finally on plans for the development of the property. Surveys of this have already been made, and the reports of such leading golf architects as Messrs, Charles A. MacDonald and Seth Raynor who, because of their recognition of the great opportunity before Yale in the development of this property, have given their services to the work, indicate that it should be possible for us to have here one of the very best golf courses, if not indeed the leading golf course, in the United States. Other appropriate uses for the property, such as for winter sports, will suggest themselves from time to time as we become more familiar with its contour and extent. Meanwhile it constitutes, as all must at once recognize, a great reserve asset for the future needs and growth of Yale.

THE FAILURE TO REAPPOINT STATE SUPERINTENDENT FINEGAN

THREE members of the Pennsylvania State Council of Education have resigned in protest against Governor Pinchot's failure to reappoint

Dr. Thomas E. Finegan as state superintendent of public instruction. They are Mr. Marcus Aaron, president of the Pittsburgh Board of Public Education; Mrs. E. Grace McCauley, of Beaver, and Mr. Homer D. Williams, of Pittsburgh, president of the Carnegie Steel Company and a trustee of Lehigh University and of the Carnegie Institute of Technology.

Mrs. McCauley, who has been president of the Pennsylvania State School Directors' Association, declared, in her letter of resignation, that Governor Pinchot promised during the recent primary campaign to reappoint Dr. Finegan. She added:

I offer my resignation as a member of the State Council of Education in public protest against ignoring the dignity, the freedom of thought and action, that should attach permanently to the position of state superintendent of public instruction; also as a further protest against the unscrupulous surrender of the interests of Pennsylvania school children into the hands of politicians.

At a recent gathering in Pittsburgh, Dr. Finegan was accorded a reception by the entire teaching staff of the Pittsburgh public schools and by college and university educators and citizens of the western section of Pennsylvania, Dr. William M. Davidson, city superintendent of Pittsburgh, presided. A set of resolutions passed by the meeting declared Dr. Finegan "another victim of the upward struggle against greed and prejudice of the free public school system in America."

The policies of Dr. Finegan will be carried out by his successor, Dr. J. George Becht, who was first deputy superintendent, according to an interview published last week in the Philadelphia *Public Ledger*. Dr. Becht is quoted as saying:

I am in a very awkward position. I was heart and soul with Dr. Finegan and when the governor proposed to me that I should accept the appointment to the office without any reservation of any kind I hardly knew what to do. I have had several conferences with the governor and he has assured me that he wants everything possible done constantly to raise our standard.

THE RESIGNATION OF PRESIDENT MEIKLEJOHN AT AMHERST

DR. ALEXANDER MEIKLEJOHN presented his resignation on June 19 as president of Amherst College. Mr. George A. Plimpton, president of the board of trustees, gave out the following correspondence between Dr. Meiklejohn and the board:

Dear President Meiklejohn: I am very sorry to advise you that in the opinion of the Board of Trustees it is inadvisable that you continue as administrative head of the college and that a majority of the faculty believe it to be in the best interests of the college that you relinquish your administrative duties. The board desires that you continue in the service of the college in your present professorship of logic and metaphysics. I express my strong personal wish, and I think the wishes of my associates, when I say that I hope you will continue with us as a member of the faculty. The board, as you know, meets to-morrow and on receipt of your answer will wish to take appropriate action.

Very truly yours,
George A. Plimpton

The second letter read:

Dear Mr. Plimpton: In response to your letter of June 19 may I say very frankly that I do not accept the judgment which you give as to the wisdom of my withdrawing from the position of administrative head of the college. I am convinced that the situation is such that my withdrawal will be harmful rather than helpful. The lack of support of which you speak is, however, so serious that I feel compelled to tender my resignation as president of the college.

Much as I appreciate the invitation to continue my service as professor of logic and metaphysics, it seems impossible for me to accept it.

Sincerely,
Alexander Meiklejohn

The last letter read:

Dear President Meiklejohn: On behalf of the board of trustees I accept with regret your resignation as president of the college and professor of logic and metaphysics, to take effect at the close of the academic year 1923-24, with leave of absence for the year 1923-24.

Respectfully yours,
George A. Plimpton
President of the Board

The Amherst board elected Dr. George Daniel Olds, professor of mathematics at Amherst, as acting president of the college.

As a protest against the forced retirement of President Meiklejohn five professors have presented their resignations. They are: Walton H. Hamilton, professor of economics; John M. Gaus, associate professor of political science;

Walter Agard, associate professor of Greek; Albert Parker Fitch, professor of the history of religion and Biblical literature, and Walter W. Stewart, professor of economics.

EDUCATIONAL NOTES AND NEWS

HARVARD UNIVERSITY has conferred the honorary degree of doctor of laws on Dr. Samuel W. Stratton, recently installed as president of the Massachusetts Institute of Technology.

AT the commencement exercises of Yale University the doctorate of laws was conferred on Dr. Livingston Farrand, president of Cornell University, and on Dr. Mary G. Wooley, president of Mount Holyoke College.

PRINCETON UNIVERSITY, at its 176th commencement exercises on June 19, conferred honorary degrees of LL.D. upon Sir A. W. Currie, principal and vice-chancellor of McGill University; Sc.D. upon Professor Theodore W. Richards, of Harvard University, and Sc.M. upon Dr. Edward R. Johnstone, superintendent of the Training School for Feeble Minded, Vineland, New Jersey.

HONORARY degrees were conferred by Wesleyan University on June 19 as follows: Doctor of laws upon President James Rowland Angell, of Yale University; doctor of humane letters upon Professor Robert M. Yerkes, of the National Research Council, and Professor George H. Blakeslee, of the department of history and international relations at Clark University.

THE honorary degree of doctor of letters was conferred upon Dr. Frank P. Graves, commissioner of education of the State of New York, by the University of Rochester at exercises held on June 18. The degree was presented *in absentia* as Dr. Graves is in Asia Minor.

PROFESSOR B. F. FINNEY was installed as vice-chancellor of the University of the South at the commencement exercises on June 16. The degree of doctor of letters was conferred upon Principal J. R. Baylor, of the Baylor School, Chattanooga.

MR. CHARLES W. PUGSLEY, of Lincoln, Nebraska, assistant secretary of agriculture, has presented his resignation to Secretary Wallace and has accepted the presidency of the South Dakota College of Agriculture and Mechanical Arts.

PROFESSOR VAUGHAN MACCAUGHEY, formerly of the College of Hawaii, Honolulu, and Territorial Superintendent of Public Instruction of the Hawaiian Islands, has accepted the editorship of the *Sierra Educational News*, made vacant through the death of Dr. Richard G. Boone, professor of education of the University of California. Mr. MacCaughey will also be associated with the general administrative work of the California Teachers' Association and its council of education, of which the *Sierra Educational News* is official organ. It also represents the California Congress of Mothers and Parent-Teachers Associations. The California Teachers' Association has offices in Berkeley, San Francisco and Los Angeles. Mr. and Mrs. MacCaughey will make their home in Berkeley.

ASSISTANT SUPERINTENDENT HARTLEY has been promoted to the superintendency of the Louisville, Kentucky, schools, to succeed Z. E. Scott, who has gone to Springfield, Massachusetts.

IRA T. CHAPMAN, superintendent of the schools of New Brunswick (N. J.), has been appointed superintendent at Elizabeth. Mr. Chapman was formerly superintendent at South Norwalk, Connecticut.

HAROLD L. BUTLER, dean of the School of Fine Arts at the University of Kansas, has accepted the deanship of the College of Fine Arts at Syracuse University.

DR. HARLEY L. LUTZ, now head of the department of economics at Oberlin College, has been made professor of economics at Stanford University. He taught at Stanford during the summer of 1922.

PROFESSOR GEORGE PHILIP KRAPP, of Columbia University, will be acting professor of English at Stanford University during the winter and spring quarters next year, while Professor Raymond M. Alden is on leave of absence.

FORMER students and townspeople of West Roxbury, Massachusetts, tendered a reception on June 14 to Miss Frances R. Newcomb, who retires this month after forty years as a teacher.

Miss Ida M. Adams, principal of the Shurtleff School, Revere, Massachusetts, who is retiring after forty-five years of service as a teacher in Revere, was given a public reception in the city hall on June 22.

Four educators from England and Scotland, on their way to the world conference on education at Oakland, California, were guests of honor at a dinner given at the Women's University Club on June 19, tendered by a special committee of New York City school men and women. The guests were Mr. E. J. Saintsbury, president of the National Union of Teachers, England; Mr. J. W. Chitchley, president of the Educational Institute of Scotland; Mr. George C. Pringle, secretary of the Educational Institute of Scotland; and Miss Clementina Laing, of the Edinburgh Academy, Scotland.

Dr. John J. Tigert, United States commissioner of education, and Dr. William L. Ettinger, superintendent of schools of New York City, gave addresses at a special program on June 19 of the Silver Jubilee exposition of New York, now in progress.

At the commencement exercises of Rensselaer Polytechnic Institute last week, the alumni association made initial plans for the celebration in October, 1924, of the centennial of the institute.

The University of Chicago has announced a gift of $200,000 from the Seymour Coman estate, the income to be used for "scientific research, with special reference to preventive medicine and the cause, prevention and cure of diseases."

An appeal to leaders of the Roman Catholic Church to unite with Protestant church leaders in insisting upon moral and religious training in the public schools was made by Bishop Thomas J. Garland, of the Protestant Episcopal Church, at a recent service of the Pennsylvania Society of the Sons of the Revolution. "We have all read of the action of the State of Oregon in the passage of a law which will practically abolish the parochial and private school system of that state," said Bishop Garland. "For one, I believe that the Roman Catholic Church is quite right in proclaiming that there must be a religious foundation for all education, but the time has come when, to be consistent, the leaders of that church must act on the principle it proclaims and give its public support to an effort that will insure some moral and religious training in the public schools. No great church, our own, the Roman Catholic, or any other, can afford to stand on the principle of the necessity of a religious basis for education and then by its influence and its vote deprive others of the same privilege and rights."

In an effort to interest men students of the University of Pennsylvania in educational problems, and to bring before the public the work of the School of Education, a series of open meetings has been held by the University Education Club at which prominent men have spoken. Among those invited were Dr. Edwin C. Broome, Philadelphia superintendent of schools; Dr. Thomas E. Finegan, Pennsylvania state superintendent of education; Dr. Frank P. Graves, commissioner of education for the State of New York, and Senator George Wharton Pepper. The Education Club was founded last year, and consists of the men students of the School of Education, about two hundred in number, as well as others interested in pedagogical problems. Last year the club received special commendation for the way it assisted in the holding of the annual School men's Week sessions, and in September it assisted in handling the large registration in the School of Education. Meetings of the club are held every other week, and are addressed by members of the university faculty and others.

"Accredited Secondary Schools in the United States" (Bulletin 1922, No. 11, of the United States Bureau of Education), is the revised list of public and private schools which the higher education division of the bureau has been issuing since 1915. The bulletin defines an "accredited secondary school" and gives detailed lists of state-accredited and association-accredited schools. Other recent bulletins issued by the bureau include: 1922, No. 17, "Statistics of City School Systems, 1919-20"; 1922, No. 24, "The School Janitor," by John Absalom Garber; and 1922, No. 25, "Higher Education in Australia and New Zealand," by Charles F. Thwing.

DISCUSSION

NATIONAL ORGANIZATION FOR EDUCATIONAL RESEARCH

THE idea of an institution built up in the service of the highest educational effort has come down to us from ancient times, manifesting itself wherever men have attained eminence in the search for knowledge and truth. More than two thousand years ago a library was founded at Alexandria; a museum was added, and both grew in the service of scholars who came from the uttermost parts of the then known world. These truth-seekers made it the greatest research university of ancient times. What it contributed to philosophy, science, literature and the advancement of learning, directly and indirectly, in that and succeeding ages, can scarcely be conceived, much less properly appreciated. While the institution was unable to withstand the deluge of barbarism that inundated the world and brought on the dark ages, the idea persisted. A few centuries ago, Lord Bacon, who reintroduced inductive logic which has so greatly facilitated the discoveries of modern science, dreamed of the Solomon's House of the New Atlantis in which every available means for advancing learning should be developed. Still later, Commenius visioned the College of Light at the head of the educational system of the state. But it has remained for modern times, and possibly for this nation, to make such an institution a practical reality, and that in a higher sense than ever before conceived.

In the absence of such cooperation as is clearly possible, men have worked alone or in small groups on problems of great concern to man. Institutions of secondary and higher learning have done much for research, but in the former it has of necessity been of elementary and preparatory nature, while in the latter it has usually been incidental to something else and so restricted by requirements and hedged about by tradition that it has lacked the necessary vitality for effective achievement. Private industry has accomplished much while primarily serving its own interests. Social groups and private foundations have pioneered in the work. Since the founding of the agricultural experiment stations, agriculture and related sciences have received unmeasured stimulus through an organization of low efficiency, but great potentiality.

On account of their connection with the agricultural colleges and of their wide geographical distribution the agricultural experiment stations are admirably situated for the development of an efficient organization. The national association of experiment stations might well undertake: (1) to canvass the field for problems of values, (2) to discuss their scientific and national significance, (3) to define problems and discuss the conditions attending the solution, (4) to call for volunteer experiments, (5) to offer through experts in experimental work suggestions as to plans of attack and technique, (6) to furnish available knowledge, (7) to maintain a bureau of advice for workers through which assignments and division of work would be suggested on application from stations and workers at stations. The individual student and each separate station should be free to determine their problems as well as the entire procedure of solution if they do not need or wish to call upon the bureau. But there are special problems that suggest themselves from time to time as of more immediate and of such national importance as to warrant an emphasis of attention and an appeal for volunteers for a solution.

In this connection it is noted that the Smith-Towner Bill provides for educational research, and this provision will doubtless in time become one of the most valuable and far-reaching developments of this important measure. A research bureau under the Secretary of Education should ultimately be developed. It should organize and mobilize all available agencies as a national encouragement of research. At present men who have the undergraduate training and the actual contact and experience to prepare them for the appreciation of the problem have the choice of two alternatives: they may work on their own initiative and at their own charge and forego the use of means elsewhere available, or they may go to some institution of higher learning where their problems, their achievements, and their real interests are treated as private affairs to be shielded from the prying eyes of the institution, while the traditionally great problems of "education in general," and one such problem in particular, must re-

ceive whatever transfer of acquired ability and and skill they are able to make as the measure of the graduate student. It must be granted that under the present system personal reward as an end-in-itself naturally takes precedence over the ideal of service. The investigator must be freed. He must have the educational means and the competent advisers, not directors, for assisting him when he has found in actual work or through contemplation an educational problem that appeals to him as important. He must have a closer approach to the sources of contributing information. He must himself be responsible for his success or failure both of judgment in selecting the problem and for the use of available means, and he must find in his work, as conscious service, a sufficient academic reward. All of this may be secured under the provision for a national bureau of research.

The new bureau should be organized for survey and investigation, for expert advice and assistance, and for record and publication. In the performance of the first function it should have such a personnel and employ such means as would be effective: (1) in discovering what of real worth is being done in every field relating to education, (2) it should gather formulated problems and formulate others, (3) it should so direct attention to them that they would enlist the best efforts of able students. In the second function it should offer the services of trained advisers, who, while allowing the individual investigator to retain his independence and regard his problem as wholly his own, would give desired assistance in the direction of the work, in locating and securing the data and in determining its validity. In order to avoid, so far as possible, indeterminate and invalid conclusions, advice on technique should be available. Lastly it should record accomplishment, and publish and put in available form whatever would seem to contribute to education. The men who would avail themselves of the means offered would find their problems in the field of actual work. They would come to the institution not to find a ready-made problem or to develop one in keeping with traditional theory and methods, but they would come as to a place of more available material collected or reference-listed because of its present or probable value in enterprise. They would come for assistance offered, not imposed, and they would come for the information and the inspiration to be had in contact with others who have similar problems. In their service, the accumulated educational resources of the nation may be made to take the place of local accumulations apart from direct use. Libraries, museums, universities, industries, state and federal departments, and other developed means would each have a function to perform. Some students would find what they wished at one place, others at another or at various places, and national significance would thus be emphasized. The nation itself would become the national research university.

Democracy is struggling for interpretation through the schools. Such an institution as is here proposed would further democratic principles in education and government as a means to sane social development, by encouraging initiative, by promoting investigation in the interest of the common good, by making available the social heritage as a universal agency, and by allowing individual effort full play; and it would direct and unify effort in the search for truth as a common purpose in the advancement of society as a whole. The organization of the forces and means for educational research, and the wide dissemination of the knowledge of achievements, with an emphasis on the order of importance, would not only result in greater returns, but it would, at the same time, place education at its rightful vantage point as the most important work of the greater nation. May not the vision of ancient philosophers and modern educators become a reality in a land of practical ideas and attainable ideals?

J. H. HOLST

INTELLIGENCE TESTS AND TEACHERS' ESTIMATES

DURING the year '21-'22 all the students in the Whitewater Normal School, including 150 high school pupils, were given both the Illinois General Intelligence Test and the Terman Group Test. The I. Q. for each student was computed; the median was 108. The median mental age of the normal school students was about seventeen years and six months.

During the year '22-'23 all newcomers were given the same tests. Complete lists were made, giving for each student the calendar age, score,

M. A., I. Q. and the I. Q. in A, B, C, D, E groups (five per cent., twenty per cent., fifty per cent., twenty per cent., five per cent.). There was nothing startling in the results. The results for individuals have been of much use to President Hyer and the directors of the various courses in consulting with students who needed special attention.

In March, '23, each member of the faculty was handed a sheet containing the names of the prospective graduates of 1923, including the summer session. The legend at the top of the sheet was as follows:

Intelligence quotient is the usual index of ability.

In estimating a student's I. Q. no account is taken of industry, attitude, knowledge, etc., only of ability to think and think straight, to "see the point," to think accurately in somewhat abstract subjects.

The I. Q.'s of our students range from 70 to 140. The median is 107 or 108. The middle half of our students are included between 96 and 119. That is, about 25 per cent. have an I. Q. between 70 and 95; 25 per cent. between 96 and 107; 25 per cent. between 108 and 118 inclusive; 25 per cent. 119 or above.

Please place before the name of each of our this year's graduates whom you have had in your classes your estimate of his I. Q.

These estimates are for office records.

These sheets were collected and the data studied with the following results:

Number of teachers rating pupils	33
Number of students rated	134
Average number of students rated per teacher	35
Average number of ratings per student	6.9

Each student's average rating was computed —this was his final rating.

The difference between each teacher's rating of each student and the final rating of the student was computed. The average of these differences fixed the rank of the teacher as a judge. Half the faculty had average deviations of seven or more, but not as great as ten.

The final rating of the students in I. Q. ran from 84 to 135 inclusive.

The average deviation from the average rating for each student for the whole faculty was eight.

The median I. Q. for all our students is 107 or 108; the median I. Q. for this graduating class is 109. The median of the teachers' estimate is 108.

The correlation, computed by the rho formula, between the teachers' estimates and the averages for the two tests is .72 with a probable error of .03. This reduced to its r equivalent is r = .736.

BENJ. B. JAMES

STATE NORMAL SCHOOL
WHITEWATER, WISCONSIN

AN EXPERIMENT IN AUTOMATIC SPELLING[1]

ON October 5, 1922, an experiment was made in the Stillwater Public Schools, Stillwater, Oklahoma, to determine the relative accuracy of automatic spelling and rational spelling.

The experiment was conducted by advanced students in the School of Education of Oklahoma A. and M. College, the work being done in connection with a course in educational measurements. A total of 286 children in grades 4, 5 and 6 were given two types of spelling exercises, the one exercise being in rational or deliberate spelling and the other exercise being in automatic or subconscious spelling.

In order to make the experiment as scientific as possible, it was attempted to keep constant all factors entering into the situation, with the single exception of the variable being measured, namely, the method of spelling. The same person gave both exercises. The same fifty words were used in both exercises. The exercises were given at approximately the same time, one following the other almost immediately, a brief rest period of five minutes intervening. In order to cancel the influence of fatigue and that of increasing familiarity with the situation, the exercise in automatic spelling preceded that in rational spelling in five of the rooms where the experiment was being conducted, and in the other five rooms the exercise in rational spelling preceded that in automatic spelling. While the same fifty words were spelled in the second exercise as in the first, no opportunity was allowed for learning to spell the words during the five minute intermission between the two exercises.

Not only were the exercises given with the

[1] Paper read before the eleventh annual meeting of the Oklahoma Academy of Science, University of Oklahoma, Norman, February 10, 1923.

TABLE I. A COMPARISON OF MEDIAN SCORES FOR AUTOMATIC AND RATIONAL SPELLING (TEN CLASSES WITH TOTAL OF 286 PUPILS)

Grade	Number of Pupils	Median Score for Rational Spelling (per cent. of accuracy)	Median Score for Automatic Spelling (per cent. of accuracy)	Which Exercise Given First
4	32	73	68	Automatic
4	33	72	76	Rational
4	36	61	67	Rational
4	14	71	68	Automatic
5	19	86	84	Automatic
5	34	92	89	Automatic
5	31	94	96	Rational
6	29	94	94	Rational
6	30	95	95	Automatic
6	28	94	94	Rational
Totals	286	832	831	

greatest care, but also the checking, compiling and tabulating were so executed as to remove any suspicion of unreliability. All who took part in the experiment were interested in the accuracy of the results.

The exercise in automatic spelling was Contest 15 in Patterson's Thirty Contests in Spelling (published by Educator Supply Co., Mitchell, S. D.), and the exercise in rational spelling was the list of the same fifty words used as contest words in Contest 15, each word being pronounced twice.

The detailed results of the experiment are found in the table.

An analysis of the above table shows that the medians for automatic and rational spelling are almost the same, being in fact identical for the three classes in grade 6. It also shows that there is a tendency for the medians to differ less as the grade increases, since the average difference for the fourth grade is 4.5 per cent.; for the fifth, 2.3 per cent.; and for the sixth, 0 per cent.

There is one generalization which can not be neglected. A careful study of the above table shows that the higher median is always that of the exercise which came second. The only exception to this is in the three classes in grade six, where the medians are identical. In the seven classes in grades four and five, the automatic spelling exercise came first four times, and each time the median score for rational spelling was slightly higher. In the same classes, the rational spelling exercise came first three times, and each time the median score for automatic spelling was slightly higher. This might indicate that the pupils in grades four and five were more influenced in their spelling by the general newness of the situation than they were by the kind of exercise used. It also shows that fatigue was not an important element in the experiment.

While the data are meagre, they tend to substantiate the conclusions reached in the Cleveland survey, namely, that there is very little difference in spelling accuracy due to using either the rational or automatic method. This is contrary to the rather common notion that automatic spelling is less accurate than rational.

HERBERT PATTERSON
STILLWATER, OKLAHOMA
OKLAHOMA A. AND M. COLLEGE,

CHARACTER EDUCATION

OUR committee has been acting in the capacity of a clearing house for materials from any available source that deal with any phase of our subject, character education. For the past year, however, our efforts have been centered on two aspects: "objectives" and "plans for teacher-training in character education."

First, on objectives of individual and group conduct, because a clear understanding of the direction of endeavor is a basal requirement of any plan of character education, or of anything else. In the determination of character education objectives we commend the noteworthy progress already made by the Boy Scout organization, the Committee on the Essentials of Democracy,

[1] Brief of the report of the committee of the National Council of Education, March 1, 1923.

the American School Citizenship League, various moral code writers, the authors of the Iowa Plan of Character Education Methods and many others. Some of these are summarized by President Paul F. Voelker of Olivet College, Olivet, Michigan, in his study, "Functions of ideals and attitudes in social education," Columbia University Contributions in Education, Teachers College Series.

Dr. A. Duncan Yocum of this committee has prepared a technical analysis of the objectives. The first division of this work was presented a year ago and is now published in SCHOOL AND SOCIETY, February 17, 1923. The second division will also be published in the near future; however, it is now ready for limited distribution in mimeographed form. Application for copy should be made to the author, University of Pennsylvania, Philadelphia.

Second, on the preparation of teachers, because it is a well-known fact that the wisest program of educational reform may fail in practice if undertaken by incompetent teachers or teachers not especially trained and qualified for the particular task in hand.

It is true that the training of teachers in character education can not go forward without a method of realizing objectives. Since, however, these methods are now imperfectly developed and in part experimental it seems best to try them out under the kind of control and expert leadership already provided in teacher-training institutions. There are, of course, some school systems equally well prepared to carry on systematic plans of character education.

We suggest that the following be incorporated in the course of study for teacher-training institutions:

1. A study of the psychology and hygiene of childhood and adolescence, preferably following courses in general psychology, social psychology and personal hygiene with some attention to mental hygiene.

2. A study of ethics with reference especially to the nature of society and civilization and the resulting moral obligations of the individual. It should aim to develop in the teacher both personal and social ideals and to create moral vision, moral imagination and a keen sense of social justice; and should be applied in solving ethical problems as they occur in contemporary social life. This philosophy should be developed inductively by abundant practice in everyday situations within the training school and its community. This course must presuppose some knowledge of history and government, such as high school students may acquire.

3. A study of character education methods based upon an analysis of character education objectives and their function in the control of individual and group conduct. These methods should take into consideration the influence of the emotions in determining conduct and the great importance of habit in character development.

This development may take the form of education for democracy, since character education in terms of better citizenship makes a strong appeal for public support.

4. The planning of the course of study and the organization of all school activities with a view to their contributing most to the formation of personal and social habits in agreement with the objectives. Extra-curriculum activities should be studied for character education values with the same painstaking analysis that is given to study of the curriculum. The use of student organizations as means toward social education has met with remarkable success at Crawfordsville, Indiana, under the supervision of Superintendent Anna Willson.

5. Practice in applying all these principles should be provided. This practice with children may be found in the ordinary practice teaching of any subject in which character elements are emphasized (biography, history, civics, health, literature, etc.) and also in supervision of extra-classroom activities having to do with expressions of attitudes and ideals of conduct.

6. Somewhere during the training of teachers for character education work there should be provided what may be called "Conduct clinics." These cases need not be confined to the so-called atypical behavior cases; any child is adequate material for such purposes. The essential idea is the provision for each member to present before the other persons being similarly trained, a case for intensive analysis and group-thinking. The case is presented by an extensive but analytical summary of all pertinent facts regarding the child. This procedure

SUGGESTIONS FOR CARRYING OUT THE RECOMMENDATIONS OF THE CHARACTER EDUCATION COMMITTEE OF THE NATIONAL EDUCATION ASSOCIATION

TEACHERS COLLEGE COURSES

1. *Two-year course for elementary school teachers.*

Freshman Year

	Autumn Cr. Hr.	Winter Cr. Hr.	Spring Cr. Hr.
Physical education and personal hygiene	1	1	1
English composition	5	4	0
General psychology	5	0	0
Sociology (social psychology)	0	5	0
Psychology and mental hygiene of childhood and adolescence (emphasis on behavior)	0	0	5
Ethics	0	0	5
Introduction to teaching	1	0	0
Technical library instruction	0	1	0
Heredity and eugenics	3	0	0
Group hygiene (sanitation)	0	2	0
Approved electives	0	3	5
Totals	15	16	16

Sophomore Year

	Autumn Cr. Hr.	Winter Cr. Hr.	Spring Cr. Hr.
Principles of education (including character education methods, course of study organization, etc.)	5	0	0
Methods of teaching elementary school subjects	9	9	0
Educational hygiene	0	3	0
Physical education supervision	1	0	0
Supervised practice teaching	0	0	16
Electives	0	4	0
Totals	15	16	16

2. *Four-year course for high school teachers.*

Freshman Year

Same as the freshman year under two-year courses with substitution of electives for the courses in psychology and sociology.

Electives to meet group requirements for the bachelor's degree.

Sophomore Year

	Autumn Cr. Hr.	Winter Cr. Hr.	Spring Cr. Hr.
General psychology	5	0	0
Sociology (social psychology)	0	5	0
Psychology of childhood and adolescence (emphasis on behavior)	0	0	5
Electives in teaching major and minor and supporting subjects	10	10	10
Totals	15	15	15

Junior Year

Group hygiene (sanitation)	2	0	0
Educational hygiene	0	3	0
Electives in teaching major and minor and supporting subjects	13	12	15
Totals	15	15	15

Senior Year

	Autumn Cr. Hr.	Winter Cr. Hr.	Spring Cr. Hr.
Science of education (general methods and measurements)	4	0	0
Supervised teaching (including methods in subject taught)	0	5	5
Secondary education (course of study and administration, including character education methods)	0	0	4
Electives in teaching major and minor and supporting subjects	11	10	6
Totals	15	15	15

is exactly analogous to the procedure in medicine and psychiatry in which one member of the staff presents a case and there follows a group discussion and, when well-directed, some excellent examples of group-thinking.

This plan is what is known in social work as case-work, the essence of which is (a) the collection and summarization of all available data in a given case (*e.g.*, heredity, life history of the individual and of his family, environment, results of mental and physical tests, etc.) in an attempt at diagnosis; and (b) the adequate record of progress and the nature and results of treatment. As applied to our problem, each teacher in training might be required during such training to make an extensive case-study of three or four pupils with whom she would be required to do practice teaching. This case-study would have the two features mentioned above, *viz.*, a summary and appraisal of all diagnostic data, and a series of chronological notations with respect to pupil's reactions, development, progress, etc. The analogy is again a medical one. The application of this technique is well illustrated by the work of the Merrill-Palmer School at Detroit under Dr. Helen T. Woolley, and the work of Dr. Wm. Healy of the Judge Baker Foundation, Boston Juvenile Court.

7. Experiments in various plans of self-government in schools, in industry and in prisons seem to indicate that self-government schemes deserve further experimentation and study as hopeful methods of promoting individual and social betterment. Self-government plans lend themselves in a remarkable way to experimental control and observation.

This is but a phase of the general problem of the great significance of group ideals and group control, so well worked out in the Boy Scout and the Camp Fire Girl organizations. The seeming good results obtained in these organizations has lead to establishment in England of clubs for older boys—clubs that aim to control the youth for better character through group ideals and activities. Teachers should have experience as leaders of such groups; and certainly teacher-training institutions should themselves develop in practice plans of student participation in school community government. This may have beneficial influence on the students themselves in addition to qualifying them better to lead in such activities when they become responsible as teachers or principals.

8. Not only should school administrators charged with teacher-training cooperate with the family, the church, and civic and voluntary organizations engaged in character education, but they should also take into account influences in business, industry and the professions that can be utilized toward realizing the objectives of character and education. Teachers should be trained in methods of active cooperation with all these agencies. The schools should not attempt to carry all the burden. They can, however, act as a coordinating agency in this cooperative undertaking.

9. The plan now inaugurated in various places—a plan providing for religious and moral instruction of children through their respective church agencies—calls for consideration of another phase of teacher-training. The success or the failure of this experiment evidently depends upon the qualifications of teachers for this difficult task. Experience thus far indicates that these teachers should have all the general scholarship and professional training required of public school teachers.

Any further development of religious and moral instruction of children in the public schools in cooperation with church agencies should not be interpreted as relieving public schools of their direct responsibility for character education.

MILTON BENNION
Chairman

UNIVERSITY OF UTAH

EDUCATIONAL RESEARCH AND STATISTICS

THE INTELLIGENCE QUOTIENTS OF MENTALLY RETARDED SCHOOL CHILDREN

ALL pupils tested were members of the special classes for mentally retarded pupils of the Detroit public schools. The testing was done by members of the psychological clinic of the Detroit public schools and by special class teachers who had been trained in the giving of the Stanford Binet tests of intelligence. The Stanford revision of the Binet-Simon tests was used, and in all cases the examination was carried to a year under which the subject performed no test.

correctly. The results of the tests made by the special class teachers were reviewed by the staff of the psychological clinic.

TABLE I.

Correlation of Intelligence Quotients between the First and Second Tests. Average interval between tests, 11 months; range, 6 to 18 months. 351 cases. Coefficient of correlation (Pearson's product-moment) + .74

First Test	Second Test: 42-45	46-49	50-53	54-57	58-61	62-65	66-69	70-73	74-77	78-81	82-85	86-89	90-93	94-97	
86-89								2	2	1	4	1			10
82-85								5	2	11	3	3	1		25
78-81					2		3	9	18	9	11	1	1		54
74-77				1	2	2	6	15	21	11	3	5	1	1	67
70-73				3	7	6	9	16	13	8	1				56
66-69				3	6	14	16	9	6	1	1				57
62-65				5	6	5	7	6	3						31
58-61			2	5	5	4	5	2							24
54-57		2	6	3	5	2									18
50-53	1	1	2	3	2										9
	1	3	10	18	30	35	46	64	65	41	24	10	3	1	351

Of the 390 pupils retested, 351 were retested after an average interval of eleven months, range six to eighteen months; 273 after an average interval of twenty-three months, range nineteen to thirty months; and 82 after an average interval of thirty-five months, range thirty-one to forty-eight months. While most of the pupils were retested two or three times, a few were retested only once.

In Table I is given the distribution of the original I. Q.'s of 351 cases and the distribution obtained upon retesting eleven months later. The coefficient of correlation between the two tests is plus .74.

In Table II is given the distribution of the original I. Q.'s of 273 cases and the distribution obtained upon retesting twenty-three months later. The coefficient of correlation between the two tests is plus .67.

In Table III is given the distribution of the original I. Q.'s of eighty-two cases and the distribution obtained upon retesting thirty-five months later. The correlation between the two tests is plus .56.

It is seen that as the interval between the original test and retest increased there was a marked decrease in the coefficient of correlation.

In Table IV are given the deviations from the original I. Q.'s of the I. Q.'s obtained upon retesting the 351 cases after an interval of eleven months. (See Table I for the distribution of the I. Q.'s.)

The average deviation of the I. Q. is 5.0 points (median deviation 4.3). In thirty-four cases (9.7 per cent.) the deviation of the I. Q. is more than ten points. In 142 cases the I. Q. increased, in twenty-five cases remained constant and in 184 cases decreased. In the 142 cases the average increase was 5.3 points and in the 184 cases the average decrease was 5.4 points.

For the 139 cases with an initial I. Q. from 50 to 69 the average deviation is 4.8 points. In eight cases (5.7 per cent.) the deviation was greater than ten points. In sixty-seven of these cases the I. Q. increased, average increase 5.4 points; in sixty-two cases the I. Q. decreased, average decrease 4.8 points; and in ten cases the I. Q. remained constant. But for the 212

TABLE II.

Correlation of Intelligence Quotients between the First and Third Tests. Average interval between tests, 23 months; range, 19 to 30 months. 273 cases. Coefficient of correlation (Pearson's product-moment) + .67

First Test	Third Test: 46-49	50-53	54-57	58-61	62-65	66-69	70-73	74-77	78-81	82-85	86-89	90-93	94-97	
86-89						1	4	7	3	2 1	1	2		9
82-85				1	4	5	8	10	5	8	3	1		23
78-81			1	2 1	5	10	15	7	5	5	4	1	1	42
74-77			1	4	7	8	10	6	5	3				54
70-73		2	5	6	7	6	8	5		2				43
66-69			1	5	6	7	4	1		1				40
62-65		4	6	3	8	2	1			1				25
58-61	3	3	2	2										24
54-57	1	1	1											10
50-53														3
	4	10	17	23	37	39	54	36	18	22	8	4	1	273

TABLE III.

Correlation of Intelligence Quotients between the First and Fourth Tests. Average interval between tests, 35 months; range, 31 to 48 months. 82 cases. Coefficient of correlation (Pearson's product-moment) + .56

First Test	Fourth Test: 46-49	50-53	54-57	58-61	62-65	66-69	70-73	74-77	78-81	82-85	86-89	90-93	94-97	
86-89						1	2	1	1	2				7
82-85					1		3	2 1	1	1				8
78-81					2	5	1	3		1	1		1	12
74-77				3	2	3	4	3	1					17
70-73			1		3	3	5	2						15
66-69		1	1	3	1	3	1	1						10
62-65	1		1	1	1	2	1							6
58-61		2	1	1			1							5
54-57														2
	1	3	4	8	10	17	18	12	3	4	1		1	82

cases with an initial I. Q. from 70 to 89 the average deviation is 5.2 points (median deviation 4.3). In twenty-six cases (12 per cent.) the deviation was greater than ten points. In only seventy-five cases has the I. Q. increased, average increase 5.2 points, while in 122 cases the I. Q. has decreased, average decrease 5.8 points, and in fifteen cases remained constant.

In Table V are given the deviations from the original I. Q.'s of the I. Q.'s obtained upon retesting 273 cases after an interval of twenty-three months. (See Table II for the distribution of the I. Q.'s)

The average deviation for the 273 cases is 6.1 points. In thirty-eight cases (14 per cent.)

the deviation is greater than ten points. In ninety-seven cases the I. Q. increased, average increase 5.5 points; in ten cases remained constant and in 166 cases decreased, average decrease 6.9 points.

For the one hundred cases with an original I. Q. from fifty to sixty-nine, the average deviation is 5.4 (median deviation 5.08). In eight cases (eight per cent.) the deviation was greater than ten points. In forty-seven cases the I. Q. increased, average increase 5.1 points; in forty-nine cases the I. Q. decreased, average decrease 6.0 points; and in four cases remained constant.

TABLE IV.

Deviation of the Second Intelligence Quotient from the First. Average interval between tests, 11 months. 351 cases.

Dev.	I. Q. 50-69			I. Q. 70-89			I. Q. 50-89		
	Plus	Minus	Total	Plus	Minus	Total	Plus	Minus	Total
0			10			15			25
1	9	7	16	10	10	20	19	17	36
2	10	7	17	10	17	27	20	24	44
3	6	7	13	8	13	21	14	20	34
4	5	9	14	15	14	29	20	23	43
5	6	12	18	5	17	22	11	29	40
6	6	5	11	6	8	14	12	13	25
7	6	4	10	4	10	14	10	14	24
8	5	5	10	4	6	10	9	11	20
9	5	3	8	3	6	9	8	9	17
10	4		4	1	4	5	5	4	9
11	2	1	3	1	5	6	3	6	9
12		1	1	3	2	5	3	3	6
13	2		2	3	4	7	5	4	9
14		1	1		3	3		4	4
15					1	1		1	1
16				1	1	2	1	1	2
17									
18	1		1		1	1	1	1	2
19									
20				1		1	1		1
Totals	67	62	139	75	122	212	142	184	351

TABLE V.

Deviation of the Third Intelligence Quotient from the First. Average interval between tests 23 months. 273 cases.

Dev.	I. Q. 50-69			I. Q. 70-89			I. Q. 50-89		
	Plus	Minus	Total	Plus	Minus	Total	Plus	Minus	Total
0			4			6			10
1	6	3	9	8	9	17	14	12	26
2	3	8	11	7	7	14	10	15	25
3	6	2	8	3	12	15	9	14	23
4	3	4	7	4	12	16	7	16	23
5	12	7	19	6	10	16	18	17	35
6	7	7	14	2	9	11	9	16	25
7	5	4	9	4	7	11	9	11	20
8		2	2	4	7	11	4	9	13
9	1	4	5	3	9	12	4	13	17
10	1	3	4	3	11	14	4	14	18
11	1		1	2	1	3	3	1	4
12					5	5		5	5
13		3	3	2	4	6	2	7	9
14					3	3		3	3
15	1	2	3		4	4	1	6	7
16					4	4		4	4
17	1		1	1		1	2		2
18					1	1		1	1
19					2	2		2	2
20									
21				1		1	1		1
Totals	47	49	100	50	117	173	97	166	273

TABLE VI.
Deviation of the Fourth Intelligence Quotient from the First. Average interval between tests 35 months. 82 cases.

Dev.	I. Q. 50-69 Plus	Minus	Total	I. Q. 70-89 Plus	Minus	Total	I. Q. 50-89 Plus	Minus	Total
0			0			4			4
1	2		2	6	2	8	8	2	10
2	1		1		4	4	1	4	5
3		2	2		1	1		3	3
4	1	2	3		4	4	1	6	7
5	2	1	3		3	3	2	4	6
6	2		2		4	4	2	4	6
7		1	1	1	1	2	1	2	3
8	1	1	2		3	3	1	4	5
9	1	3	4	1	2	3	2	5	7
10					4	4		4	4
11	1		1		1	1	1	1	2
12		1	1		1	1		2	2
13				1	4	5	1	4	5
14					2	2		2	2
15					1	1		1	1
16					4	4		4	4
17		1	1		4	4		5	5
18									
19					1	1		1	1
Totals	11	12	23	9	46	59	20	58	82

For the 173 cases with an initial I. Q. from 70 to 89, the average deviation is 6.6 points (median deviation 5.7). In thirty cases (seventeen per cent.) the deviation was greater than ten points. In fifty cases the I. Q. increased, average increase 5.8; while in 117 cases the I. Q. decreased, average decrease 7.2 points; and in six cases remained constant.

In Table VI are given the deviations from the original I. Q.'s of the I. Q.'s obtained upon retesting the eighty-two cases after an interval of thirty-five months. (See Table III for the distribution of I. Q.'s.)

The average deviation for the eighty-two cases is 7.4 points (median deviation 6.5 points). In twenty-two cases (twenty-seven per cent.) the deviation is greater than ten points. All but two of these deviations are negative. In twenty cases the I. Q. increased, average increase 4.6 points; in four remained constant and in fifty-eight decreased, average decrease 8.9 points.

For the twenty-three cases with an initial I. Q. from fifty to sixty-nine, the average deviation is 6.4 (median deviation 5.75). In eleven of these cases the I. Q. increased, average increase 5.3 points; and in twelve cases decreased, average decrease 7.5 points.

For the fifty-nine cases with an initial I. Q. from seventy to eighty-nine, the average deviation is 7.9 points (median deviation 7.25). In nineteen cases (thirty-two per cent.) the deviation is greater than ten points. In four cases the I. Q. remained constant; in nine cases increased, average increase 4.0; and in forty-six cases decreased, average decrease 9.2 points.

In Table VII the more important facts presented in Tables 4, 5 and 6 are summarized. From this table it is seen that the intelligence quotient decreased in 52.4 per cent of the cases

TABLE VII.
Decrease in the Intelligence Quotient.

Average interval between tests	Percentage of cases showing decrease in I. Q. I. Q. 50-69 No.	%	I. Q. 70-89 No.	%	I. Q. 50-89 No.	%	Amount of Decrease in I. Q. I. Q. 50-69 Average	I. Q. 70-89 Average	I. Q. 50-89 Average
11 months	139	44.6	212	57.5	351	52.4	0.5 increase	1.5	0.7
23 months	100	49.0	173	67.6	273	60.8	0.6	3.2	2.2
35 months	23	52.2	59	78.0	82	70.7	1.4	6.6	5.1

TABLE VIII.

The Intelligence Quotient in Relation to Chronological Age. The Percentage of Cases in Each Age-group Showing a Decrease in Intelligence Quotient.

*Age	Average interval between tests 23 months.						Average interval between tests 35 months.					
	I. Q. 50-69		I. Q. 70-89		I. Q. 50-89		I. Q. 50-69		I. Q. 70-89		I. Q. 50-89	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6	0	0.0	5	20.0	5	20.0	0	0.0	1	100.0	1	100.0
7	1	0.0	19	63.2	20	60.0	0	0.0	6	66.6	6	66.6
8	17	52.9	35	65.7	52	61.5	9	44.4	18	66.6	27	59.3
9	17	35.3	45	60.0	62	52.4	5	40.0	14	78.5	19	68.4
6-9	35	42.8	104	62.5	139	56.1	14	42.9	39	71.8	53	64.2
10	28	53.6	44	72.7	72	65.3	3	33.0	12	83.3	15	73.3
11	20	35.0	16	93.8	36	61.6	1	100.0	0	0.0	1	100.0
12	5	40.0	5	80.0	10	60.0	4	75.0	1	100.0	5	80.0
13	9	77.7	4	75.0	13	76.9	1	100.0	7	100.0	8	100.0
14	3	100.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
10-14	65	52.3	69	78.3	134	65.7	9	66.6	20	90.0	29	82.8
6-14	100	49.0	173	67.6	273	60.8	23	52.2	59	78.0	82	70.7

* Age at last birthday.

where the interval between examinations was eleven months, in 60.8 per cent. of the cases where the interval between examinations was twenty-three months, and 70.7 per cent. of the cases where the interval between examinations was thirty-five months.

It is surprising to find that the intelligence quotient of the group with an initial I. Q. from fifty to sixty-nine changed so little that for all practical purposes it may be said to have remained constant, while, on the other hand, the intelligence quotient of the group with an initial I. Q. from seventy to eighty-nine has shown a marked decrease. For in the latter group the I. Q. decreased in seventy-eight per cent. of the cases where the interval between examinations was thirty-five months and the average decrease in the I. Q. for the entire group was 6.6 points.

From Table VIII it is seen that the greater percentage of cases that decrease in I. Q. in the group with an original I. Q. from seventy to eighty-nine as compared with the group with an original I. Q. from fifty to sixty-nine, can not be accounted for by difference in chronological age. For in all the age-groups containing both high and low I. Q.'s except two the percentage of cases that decrease in I. Q. is greater among the pupils with an original I. Q. from seventy to eighty-nine than among those with an original I. Q. from fifty to sixty-nine. And in the age-groups that do not contain both high and low I. Q.'s the percentage of decrease among the I. Q.'s from fifty to sixty-nine is just as great as it is among the I. Q.'s from seventy to eighty-nine.

That the I. Q. decreased with increase of chronological age regardless of whether the original I. Q. was high or low, is clearly shown by comparing the average percentage of cases decreasing in I. Q. for the combined age groups six to nine with that of age-groups ten to fourteen. It is seen that where the interval between examinations was twenty-three months the difference in the percentage of cases showing a decrease in I. Q. for the combined age-groups six to nine as compared with the combined age-groups ten to fourteen is approximately ten per cent. But the difference for the corresponding age groups where the interval between examinations was thirty-five months is found to be eighteen per cent.

The I. Q. of eighty-three per cent of the pupils who were ten to fourteen years of age at the time of the first test decreased approximately nine points in three years, as compared with a decrease of six points for sixty-four per cent of the pupils who were six to nine years of age at the time of the first examination. The I. Q. of ninety per cent. of the pupils who were ten to fourteen years of age at the time of the first test, but who had an original I. Q. of not less than seventy, decreased nine points in three years, as compared with seventy-two per cent. for the corresponding group who were six to nine years of age at the

time of the first test. This increase with age in the percentage of cases showing a decrease in I. Q. is also true, but to a less degree, of the pupils with an original I. Q. from fifty to sixty-nine.

It may well be suggested that no one should expect the intelligence quotient to remain absolutely constant; that a deviation of five points or less has little or no significance. Of the 351 cases retested after an interval of eleven months twenty per cent. decreased in I. Q. more than five points, while seventeen per cent. increased more than five points. Of the 273 cases retested after an interval of twenty-three months thirty-four per cent. decreased in I. Q. more than five points, while only fourteen per cent. increased more than five points. And of the eighty-two cases retested after an interval of thirty-five months forty-eight per cent. decreased in I. Q. more than five points, while only ten per cent. increased more than five points.

These results seem to indicate that there is a tendency for the I. Q. to decrease. This tendency, however, is much more marked in those cases with an original I. Q. of not less than seventy. Of the 212 cases with an original I. Q. of not less than seventy retested after an interval of eleven months, twenty-four per cent. decreased in I. Q. more than five points, while only thirteen per cent. increased more than five points. Of the 173 cases with an original I. Q. of not less than seventy retested after an interval of twenty-three months thirty-nine per cent. decreased in I. Q. more than five points, while only thirteen per cent increased in I. Q. more than five points. And of the fifty-nine cases with an original I. Q. of not less than seventy retested after an interval of thirty-five months, fifty-four per cent. decreased in I. Q. more than five points, while only five per cent. increased by that amount.

These results are in keeping with those of Kuhlmann,[1] who found that the intelligence quotient decreased more for borderline cases than for the lower grades.

SUMMARY

1. All pupils tested were members of the special classes for mentally retarded pupils of the Detroit public schools.

2. Of the pupils retested, 351 were retested after an average interval of eleven months, 273 after an average interval of twenty-three months and eighty-two after an average interval of thirty-five months.

3. All testing was done by members of the psychological clinic of the Detroit public schools and by special class teachers who had been trained in the giving of the Stanford-Binet tests. The testing was done with the Stanford Revision of the Binet-Simon tests of intelligence.

4. The intelligence quotient of pupils with an original I. Q. from fifty to sixty-nine remained practically constant.

5. The intelligence quotient of pupils with an original I. Q. from seventy to eighty-nine decreased.

6. The decrease in the intelligence quotient was greater among pupils ten to fourteen years of age at the time of the first test than among those six to nine years of age.

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[1] Kuhlmann, F., *The Journal of Applied Psychology*, Vol. 5, p. 223.

THE RETARDED COLLEGE PROFESSOR

NUMEROUS studies have revealed a very considerable retardation in the progress of pupils through the public schools. We are well aware of the fact that the typical pupil does not finish the elementary school in eight years, nor the high school in four years. We are also fairly sure that the average student spends more than four years in securing his A. B. degree. The factors affecting such retardation are numerous and vary with the different school levels or grades. Successive elimination of the unfit, the unfortunate and the most retarded pupils makes comparisons between these levels exceedingly difficult. If a pupil enters the first grade at six or seven, spends eight years in the elementary school, four years in high school, and four more in college, he will receive his A. B. degree at the age of twenty-two or twenty-three provided he has not failed in any of the requirements. He may be considered as normal inasmuch as he has progressed at the rate for which our school system has apparently

been planned. It must be remembered, however, that he is sure to be of a very select group and that his progress at any stage may not be fairly compared with that, say, of the typical pupil who drops out at the seventh grade.

In the present study it will be shown that the typical college professor of a certain group completes the work for the A. B. degree between the ages of twenty-two and twenty-three and hence may be considered as progressing thus far in his scholastic career at a normal rate as defined above. A gross average may of course be very misleading, but the fact that the undergraduate work of this typical professor is completed at the ages indicated shows that our present school system is fairly well suited to his rate of progress. He is not retarded up to this point in the sense that he has completed the required work in the time allotted by the educational program.

If this idea be extended into the level of graduate work we find that a man should complete the requirements for the A. M. degree in one year and for the Ph. D. in three years. These at least are the limits set forth in university bulletins. As a matter of fact it will be shown that these periods are three years and eight years respectively for the average man in the groups here studied. Thus while retardation of the type described does not occur for the typical college professor up to the end of his undergraduate work, it does appear to a very marked extent in pursuing the higher degrees. Instead of speaking of "retardation" in this connection it might be better to refer to the inter-degree periods as "graduate spans." These spans are two or three times as long as might be expected under normal progress. It is the purpose of this study to determine the ages at which higher degrees were obtained for a certain group of professors, to indicate the graduate spans, and to discuss some of the factors affecting the length of such spans.

SOURCE OF THE DATA

The present inquiry has been confined to college professors who received the Ph. D. degree at an American university. Professors of law and medicine were not included because in many cases their graduate work was not comparable with that along academic lines. The following items were then secured for 920 men from the 1916-17 volume of "Who's Who in America."

1. Principal subject (now teaching).
2. Age married.
3. Age got A. B. degree.
4. Age got A. M. degree.
5. Age got Ph. D. degree.
6. Inter-degree spans.

It must be borne in mind that these data form a select group within the larger population of all college professors in America. Men are included in *Who's Who* on the basis of "conspicuous achievement" in their respective lines of work.

The representative character of the data may be seen from the rough classification by subjects:

Philosophy, psychology, education, theology	125
Classics	68
Modern languages	53
Social sciences, sociology, anthropology	119
History	100
English	96
Natural science, geology, geography, meteorology	65
Biological sciences	136
Chemistry, physics	96
Mathematics, astronomy	62
All groups	920

Comparison within these subject groups were made but revealed no significant differences. It was therefore decided not to separate them for the purpose of the present study.

AGES AT WHICH DEGREES WERE OBTAINED

Of the 920 men included in this study, 519 took the master's degree while 401 did not. Inasmuch as the intermediate degree is a very important factor in determining graduation age and span, all subsequent tabulations have been made on the basis of A. M. and no A. M.

Table 1 presents five distributions, all exhibiting a very wide scatter and positive skewness. The standard deviations for age at which the Ph. D. was received are roughly twice those for the A. B., indicating the presence of more numerous and cogent retarding factors for the higher degree. The measure of asymmetry used is

$$\text{Skewness} = \frac{3(\text{Mean-median})}{\text{Standard deviation}}$$

Values from this formula are all positive and approximately the same size, showing that the retarding factors are more in evidence than those causing acceleration. Inspection of the distributions reveals the rather surprising fact that nearly ten per cent. of the men receive the A. B. after the age of twenty-seven and the Ph. D. after thirty-nine.

The average age for the A.B. is approximately twenty-three for groups with and without the master's degree. The small difference in favor of the latter group is not statistically significant. The mean age for the A. M. degree is about twenty-six and for the Ph. D. thirty-one years. For the group without the A. M. the mean age for the Ph. D. is twenty-nine. It thus appears that taking the intermediate degree brings about a difference of two years in the spans of these groups. This does not mean, however, that the average time for the A. M. degree is two years as will be shown in the next table. What it does show very clearly is that taking a master's degree is a very important factor in prolonging the graduate period.

TABLE I.

DISTRIBUTIONS OF AGES AT WHICH A.B., A.M. AND PH.D. DEGREES WERE OBTAINED FOR GROUPS WITH AND WITHOUT A.M. DEGREE

	With A.M. degree			Without A.M. degree	
Age	A. B.	A. M.	Ph. D.	A. B.	Ph. D.
16	....	....	....	1	....
17	1	....	....	3	....
18	8	....	....	7	....
19	22	2	....	10	....
20	65	6	....	41	2
21	69	25	1	73	2
22	102	44	4	81	7
23	66	69	15	66	14
24	62	59	26	42	29
25	35	61	30	33	38
26	27	49	36	15	54
27	17	48	52	13	37
28	16	34	37	5	27
29	8	30	31	1	31
30	9	20	35	1	42
31	6	20	31	1	29
32	1	15	37	2	17
33	1	13	38	3	13
34	2	10	31	1	10
35	2	4	21	....	7
36	....	4	18	....	7
37	....	2	10	1	5
38	....	....	11	....	5
39	....	2	7	1	9
40	....	1	8	....	5
41	....	....	11	....	1
42	....	....	5	....	3
43	....	....	6	....	3
44	....	....	6	....	....
45	....	....	3	....	3
46	....	....	1	....	....
47	....	1	1	....	....
48	....	....	1	....	....
49	....	....	3	....	....
50	....	....	2	....	....
51	....	....	1	....	....
52	....	....	....	....	....
53	....	....	....	....	1
Total	519	519	519	401	401
Mean	23.0	26.1	31.1	22.7	29.0
Median	22.4	25.4	30.3	22.3	28.1
S. D.	2.9	3.8	5.6	2.7	4.8
Skew.	0.6	0.6	0.4	0.5	0.5

SPANS BETWEEN DEGREES

This prolongation of the graduate span may be shown more clearly in Table 2. The distributions for A.B.-Ph.D. span indicate that some men spent all the way from one to twenty-seven years before their graduate work was completed, while ten per cent. of them spent more than fourteen years. This is an encouraging fact

TABLE II.

DISTRIBUTIONS OF INTER-DEGREE SPANS FOR GROUPS WITH AND WITHOUT THE A.M. DEGREE

	With A.M. degree			Without A.M. degree
Span	A.B.-A.M.	A.M-Ph.D.	A.B.-Ph.D.	A.B.-Ph.D.
0	....	1	....	....
1	152	50	....	2
2	94	123	14	22
3	144	77	49	76
4	48	61	65	64
5	20	47	68	49
6	15	37	53	39
7	8	22	58	47
8	12	15	29	20
9	10	21	26	19
10	3	15	32	14
11	3	8	21	11
12	4	12	21	7
13	2	6	19	3
14	....	6	13	6
15	....	6	4	4
16	....	2	11	3
17	3	2	4	6
18	....	1	9	4
19	....	....	6	1
20	....	1	4	2
21	....	1	2	....
22	....	3	2	....
23	....	1	1	1
24	....	....	1	....
25	....	1	2	....
26	1	....	1	....
27	....	....	4	1
Total	519	519	519	401
Mean	3.1	4.9	8.0	6.3
Median	2.6	3.6	6.7	5.2

for the prospective college professor who may be somewhat slow in securing his Ph. D. He is not alone in this respect The table also shows that the average span for the man with the A. M. is eight years, while that for the man without the master's degree is a little over six.

The distribution for A. B.-A. M. span is of interest. The mean is about three years with crude modes at one and at three years. Furthermore nearly one third of the men receive this degree in one year. It seems at first curious that three and not two years should mark the next highest frequency. The probable explanation is that if a man fails to get his master's degree in a year, he goes out and teaches meanwhile working up his results. He then comes back into residence, finishing the third year.

THE MARRIAGE FACTOR

Complete tabulations for the marriage factor are too bulky to be presented here, but the more outstanding results may be briefly noted. About ninety-two per cent. of the men were married. The mean age at which men with the A. M. degree married was 29.5, while the corresponding age for those without the master's degree was 29.9. We may therefore conclude that the typical college professor in these groups married at thirty. More men married the same year they took their Ph. D.'s than at any other time, thus making the completion of their graduate work a doubly important event.

It is further noteworthy that men without the A. M. married a year after receiving the Ph. D., while the average time for those with the master's degree was a year and a half before. Relatively early marriage then is associated to a certain extent with the possession of an A. M. degree, the probable explanation being that if a man has this degree he may venture matrimony more readily, or that if he has a wife he feels he must capitalize on his graduate work for the immediate earning of a livlihood.

Graduate spans for men married during the graduate period and afterward are presented in Table 3. For early marriage and the possession of an A. M., the average A. B.-Ph. D. span is nearly ten years; for late marriage and no intermediate degree, this span is reduced to five years. This is a very significant fact. By foregoing early marriage and the A. M. degree, the typical man has his graduate work complete at the age of twenty-seven instead of at thirty-two. These five years according to Cattell[1] are among the most fruitful in a career devoted to research. To spend them on the routine graduate requirements and in earning a livlihood is sure to cause a serious loss in the productive work of such men.

The gross facts presented here do not go far to explain the causes which operate to prolong the graduate period. The master's degree takes three years and lengthens the graduate span by two. Early marriage and the taking of such a degree double the time of higher training. In both cases the chief cause contributing to delay is undoubtedly the necessity for earning a livlihood before graduate work is completed, this factor operating more cogently in the case of early marriage.

In interpreting the above results it must be kept in mind that the groups described were composed of illustrious men, all of whom completed their graduate training ten years ago. Requirements for higher degrees have certainly not been made easier since that time and economic conditions have surely not been more favorable for graduate work during the last few years. Furthermore the typical professor from the whole population has doubtless experienced a greater retardation before his graduate work than was found in this study. At the present time the average college professor probably receives his Ph. D. after the age of thirty-five.

TABLE III.

AVERAGE A.B.-PH.D. SPANS FOR GROUPS MARRIED BEFORE AND AFTER RECEIVING THE PH.D. DEGREE

Status	With A.M. degree		Without A.M. degree	
	Cases	Span	Cases	Span
Married before Ph.D.	275	9.84	166	7.86
Married after Ph.D.	188	5.92	206	4.97

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[1] J. McKeen Cattell, "American Men of Science," The Science Press, New York, 1910, page 577.

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